

## Word-Formation Models and Structural Types of Neologisms – ICT Terms in the English Language

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### ABSTRACT

*The research objectives are as follows: to identify the basic word-formation models of neologisms - ICT terms in the English language, to reveal principles of ICT terms formation. Studying neologisms helps to understand the English word-formation system functioning. Scientific originality of the paper lies in the fact that the authors identify and classify the most productive word-formation models of neologisms - ICT terms in the English language. As a result, it is proved that neologisms-terms are most often formed morphologically, they belong to different morpho-semantic groups.*

### Introduction

The relevance of this study is to identify the current trend in the development of the word-formation system of English as an international language of the scientific community. The field of infocommunication technologies chosen for the study is the most universal and widely used field of professional interaction between specialists in technical, natural sciences and humanities. With the development of scientific and technological progress, an overwhelming number of new concepts, technologies, hardware and software technical means need timely nomination, which leads to regular updating of the lexical composition of the modern English language.

Neologisms appear as a result of a long word-formation process and a priori represent are a priori the most productive word-formation type.

We set the following objectives: firstly, to summarize and systematize the existing material on the problem of terminology formation; secondly, to make a sample of neologisms in English - terminology of information and communication technologies; thirdly, to identify the most productive word-formation models and structural types of building new units-terminology of information technology.

To ensure the reliability of the research results, the following methods were used in the course of the study. The main method was descriptive, based on research methods - observation, comparison, generalization and classification. When analysing the data obtained, a continuous sampling method and techniques of component and quantitative analysis were used.

The theoretical basis of the present study were the works of domestic linguists devoted to the issues of term formation (V. P. Danilenko [1], N. Z. Kotelova [2], A. V. Superanskaya et al. [4]) and the word-formation mechanisms of neologisms (V. V. Lopatin [3]).

The practical significance of the study lies in the fact that the results obtained can be used in a lecture-practical course on the theory and practice of special translation and in the preparation of recommendations on terminology formation, addressed to researchers interested in the issues of terminological nomination.

### **Ways of creating new lexical units**

The central mechanism for the creation of new words in a language is the word-formation model. One of one of the main characteristics is productivity, which demonstrates the word-formation activity of a particular derivational element. A model, stem or affix that forms a new word may be The model or affix forming a new word can be productive, i.e. actively participating in creating new words, or non-productive - passively, formally present and forming an insignificant number of new words or not forming them at all. In different periods of the English language, modes of word formation, as well as types of word formation, show different degrees of activity.

The ways of derivation are divided into the following groups:

1) morphological ways - formation of new words with the help of word-forming morphemes:

- affixal types (prefixal, suffixal, mixed types, non-affixal or suffixless);

- non-affixal types (addition: base and word formation, word fusion, abbreviation);

2) morphosyntactic types:

- conversion (substantiation, adjectivation, adverbialisation);

- reverse derivation;

3) phonological ways:

- alternation of sounds;

-sound interchange; accentuation;

4) lexico-semantic ways.

Modern English has a significant number of ways of word formation, but not all the mentioned ways are used equally, and the productivity of each of them is different. Moreover, intralingual and extra-linguistic factors have a certain influence on the degree of productivity of these or those ways of word formation in different periods.

### **Laws of Terminology**

In terminology studies it is common to take as a basis the ways of word formation of common literary language.

According to the Russian philologist V. P. Danilenko, "in term formation active and productive are the same ways of naming, with the help of which the lexical stock of the literary language is replenished: semantic, syntactic (with its lexico-morpho-syntactic varieties) and morphological (affixal and word formation). This shows that terminological word formation in the language of science is based on the system of word formation of the literary language. However, taking as a basis the existing The language of science works out its own word-formation subsystem, subordinating it to the main requirements and functions of terminological vocabulary" [1, p. 90]. Nevertheless in the

language of science there are specific features of word formation. The earlier classification of word-formation methods acquires the following form:

- semantic terminological formation, including terminologization, determinologization and reterminologization;
- morphological terminization;
- syntactic terminformation;
- term-making;
- borrowing.

Before being formed into a neologism, a new potential word is created on the basis of highly productive types of language and is characterised by a high degree of regularity. "Regular are regarded as rows of motivated words, similar in structure and having the same word-formation meaning (let us remind that word-formation meaning is the ratio of the meaning of motivated to the meaning of motivating). Such regularity is an important precondition that new words of these types are created in speech freely, unconstrainedly and as if mechanically". [3, p. 82]. As the domestic linguist V.V. Lopatin rightly points out, potential words "arise most freely, belong to the most productive word-formation types; each of these words is one of the numerous manifestations of the word-formation laws of language". In contrast to potential words, occasionalisms are distinguished by a deliberate deviation from the word-formation patterns and norms, characteristic of linguistic development. Hence, it follows that an occasional word is formed according to non-productive word-formation types or deviates from the grammatical regularities usual for these types, and may be formed instead of other commonly used synonymic words of the same root. Thus, neologisms appear as a result of a long word-formation process and, being originally potential words, neologisms a priori represent the most productive word-formation type of language. Consequently, it seems possible to argue that the study of neologisms contributes to Neologisms contribute to describing the real, synchronous process of functioning of the word-formation system of a language.

### **The neologisation of information technology terminology**

With the advent of the twenty-first century, neologisation hit the scientific and technical registers, the terminological system and the sub-lingual language of information technology. Neologisms of actively developing stylistic layers of vocabulary are intended to meet the needs of conciseness, brevity of transmitted information, easy pronunciation, visual and graphic compactness of new units, as well as to have the ability to enter into intagmatic and paradigmatic relations.

Terminology is a special subsystem of the lexical composition of language. According to A. V. Superanskaya, N. V. Podolskaya and N. V. Vasilyeva, "terminology as a set of terms constitutes a part of special vocabulary" [4, p. 7]. Term, as the main component, determines the degree of development of any terminosystem, the level of its prevalence, structural complexity, including the presence of its own subsystems of the presented field of knowledge. Characteristic features of the term system of computer-mediated communication are due to the specificity of the object of scientific research. The high significance of infocommunication technologies in the life of each person, continuous development of computer technology and production of new devices based on updated materials and digital technology predetermine the cognitive and pragmatic approach to lexicological study of this terminosystem. The diversification of the sphere of infocommunication technologies entails the establishment of new system relations and relations at the functional-systemic level of the terminosystem, and the updating of its concepts and replenishment by appropriate neologized lexical units is associated with the process of term formation.

The process of term formation follows generally accepted rules, norms and methods of word formation, as "terms are words, and nothing linguistic is alien to them. [2, p. 27]. However, unlike basic lexical units, a term has distinctive characteristics, "the peculiarity of a term is the presence of

It has a strict, exact definition, unambiguity of its content. But unambiguity of content is not in the sense of monosemy, but as the presence of a term (or its meaning) in a close sense".

### **Structural types of English-language neologisms-terms**

The structural types of lexical units are differentiated depending on the number and variety of root morphemes and the presence or absence of word-formation affixes. The study revealed the following structural types of neologisms-terms of information and communication technologies: simple, complex, terminological combinations and abbreviations.

Simple neologisms-terms are divided into non-derivative and derivative. By derivative neologisms-terms we mean lexical units formed semantically terminology, and by means of metaphorical rethinking of common scientific terminology and general scientific vocabulary.

Simple non-derivative neologisms-terms of computer technology and information technology have a null inflection, and their form coincides with the stem and root (Windoze). This type of neologisms-terms is subject to conversion (a brick, to brick). By derived neologisms-terms we mean terms based on one or more derivative bases and having in their composition derivational affixes. For example, Ultrabook, Specnology, an overclocker [7].

Affixal mode includes the following categories: suffixation, prefixation, prefixalsuffixal category. The study has shown that the most productive way of forming simple new terms is the prefixal type. Prefixes were involved in the formation of derivative neologisms:

over- (prefix indicates excessiveness, excess of some feature) - to overclock; sub- (subordination, subdivision) - Subnotebook; hyper- (used for exaggeration, excess) - Hyperthreading; ultra- (being beyond, extreme) - ultraportable; micro- (super-small size) - microbots; nano- (name of a unit of physical (name of a unit of physical quantity to form the name of a fractional unit) - nanomachines.

According to the results of structural analysis of neologisms-terms of info-communication technologies the most productive prefixes are ultra-, nano-, micro-. The latter ones are related to decimal prefixes of the International System of Units (SI). The prevalence of these prefixes in the corpus of infocommunication technology neologisms is conditioned by the field of their creation and functioning.

The next category in terms of the frequency of formation of simple derivative neologisms-terms is suffixation. The study revealed the presence of such suffixes as -ware (Bloatware), -ation (Tivoization), -logy (Specnology), -y (lappy). Suffix -ware is quite common and participates in the formation of neologisms-terms to denote new software products, by which software is commonly understood: fatware, Zenware, Fraudware [10].

An example of a prefix-suffixation category is the combination of the prefix over- and suffix -er: an overclocker. The morphological classification of simple neologisms-terms is represented by the following parts of speech: noun (N), verb (V) and gerund (Gerund).

The conducted structural analysis showed the presence of non-derivative compound neologisms-terms as a part of infocommunication technology terminological system. Complex neologisms-terms consist of two or more bases. Compared to simple neologisms-terms, complex neologisms-terms are distinguished by a greater variety of morphological components, namely an adjective (Adj) and an auxiliary part of speech - preposition (Prep). We have identified typical structural patterns of the creation of complex neologisms-terms: N + N = N (cancelbot), Adj + N = N (Smartbook), Adj + prep

= Adj (lights-out), N + V = V (to jailbreak). Base addition refers to the non-affixal type of word formation. Complete stems are formed by adding complete is formed by adding full stems to form compound neologisms-terms (Chromebook, Chatbot, Thunderbolt). The truncated bases are complex abbreviations or complex abbreviated neologisms-terms.

In the corpus of the studied abbreviated neologisms-terms of information and communication technologies it is acceptable to divide them into two main structural types: graphic and lexical abbreviations. Graphic abbreviations prevail in computer terminology and constitute the largest group. Two types of graphical abbreviations of neologisms-terms have been identified in approximately equal numerical proportions: suspensions (trunk-words) and sigle words (initialisms). Syllabic abbreviations consist of binary word combinations: Vook < video + book, Mobisode < mobile (phone) + episode, picotechnology < picometer + technology, Picoscience < picometer + science, motes < remote + robots, phablet < phone + tablet. The initial abbreviations consist of from the first letters of the word combination: AG < Augmented reality, SMT < simultaneous multithreading. "Abbreviations of computer communication terms are not only multi-component, but also complex in their composition, with the process of coding these abbreviations moving to a more complex level - double coding". [5, c. 149]. For a long time developers created various For a long time developers created various types of computer memory DRAM (dynamic random access memory)

For a long time, developers have been pursuing the idea of increasing performance and capacity of random access memory (DRAM). We present below a number of neologisms-terms, built on the unified word-formation model using the mechanism of mechanism: PM DRAM < page mode DRAM, FPM DRAM < fast page mode DRAM, EDO DRAM < extended data out DRAM, SDR SDRAM < single data rate synchronous DRAM, BEDO DRAM < burst EDO DRAM [8].

During the structural analysis of abbreviations, neologisms-terms, the component composition of which is distinguished by the presence of ideographic signs, are singled out into a separate group. The form-forming background may be is represented by various structural elements. For combinatorial or mixed phono-ideograms (logograms, anagrams) are characterized by alphanumeric (4-D technology) and alphanumeric-symbol accompaniment (Li-Fi < Light Fidelity) [9].

Compound neologisms-terms should be distinguished from compound terms, which are also complex neologisms. The components of compound neologisms-terms are bases (morphemes), and the components of terminological combinations are words. By examining the neologisms of terminological combinations, we have identified the typical structural patterns of infocommunication terminology creation. Substantive terminological combinations consisting of a noun and a defining component, are built according to the model N + N (click fraud, insect robots, Decision engine, hyper-threading technology, Intel Iris) and Adj + N (smart matter, smart dust, digital dust, Kinetic typography). Few N + Gerund models (Cloud computing) and V + prep + V (wave and pay) [6].

An analysis of the word-formation structure of neologisms-terms of computer technology has shown an unequal quantitative proportion of the varieties of terminological units. The number of derivative terms prevails over the number of non-derivatives. The most numerous are the groups of compound terms and terms-combinations are most numerous. Rather high activity of word formation as a method of term formation is caused by the ability of one whole-formed unit to express complex concepts. The universal need to produce and use these lexical units is connected with increasing specialisation. Predominantly two-component (binary) compound neologisms-terms have a capacious structure that allows the creation of voluminous definitions. Multi-component terms and

terminological combinations, including abbreviations, are especially typical for English-speaking terminology of computer technology. The morphological classification of neologisms is represented by the following parts of speech: noun (N), adjective (Adj), verb (V), gerund (Gerund) and prepositional constructions (prep).

To summarise the above, it should be noted that English-language computer terminology is structurally complex. Neologization in terminology formation is a powerful source of development of computer terminology and is closely connected with the tendency of language economy of lexicographic signs, conveying the content of an utterance.

The studied theoretical material on the problem of term formation and the analysis of the ways of formation of new lexical units allow us to draw the following conclusions. Neologisms-terms are formed in most cases by morphological way, with a prevailing number of derivative neologisms-terms over non-derivatives. The most productive are the word-formation models of complex neologisms-terms  $N + N = N$ ,  $Adj + N = N$ ,  $Adj + prep = Adj$ ,  $N + V = V$ .  $N + N$ ,  $Adj + N$  are active models of the construction of neologisms of word combinations. Substantive word combinations prevail in the cumulative volume neologisms-terms.

We see the prospects for further research of the problem in studying the semantic and stylistic The prospects for further research of the problem we see in the study of semantic and stylistic differentiation of neologisms of infocommunication technologies.

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